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Application No. 10/023,520
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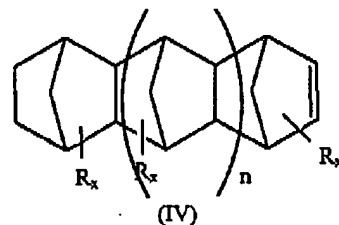
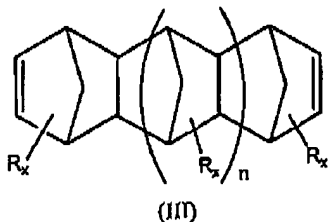
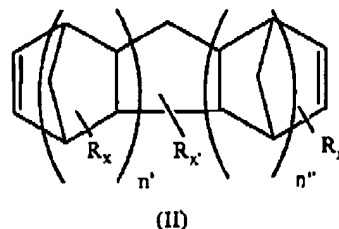
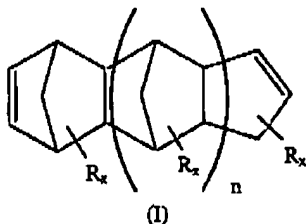
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(028248-1803)

In the Claims:

Claims 8, 10, and 11 are amended and Claims 23-34 are added by the present amendment. This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-3. (Canceled)

Claim 4. (Withdrawn) A cycloaliphatic epoxy monomer derived from one of the following structures:



wherein:

- each R is independently a lower alkyl or a halogen,
- n is 1 or 2,
- the sum of $n' + n''$ is 2 or 3,

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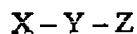
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each x is independently 0, 1, or 2, and

x' is 0, 1, or 2.

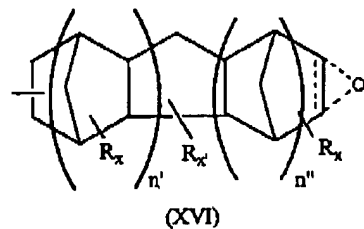
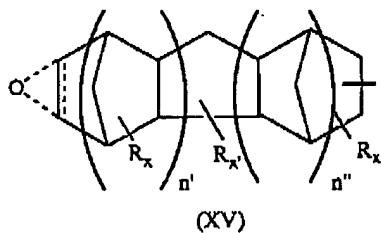
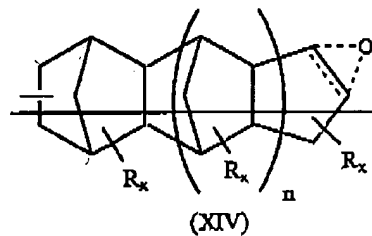
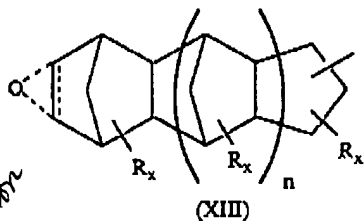
Claims 5-7. (Canceled)

Claim 8. (Currently amended) A bifunctional monomer according to the following structure:



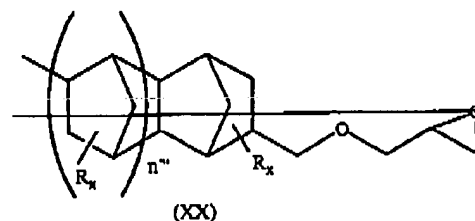
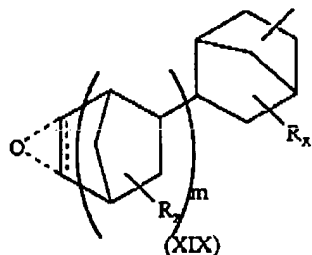
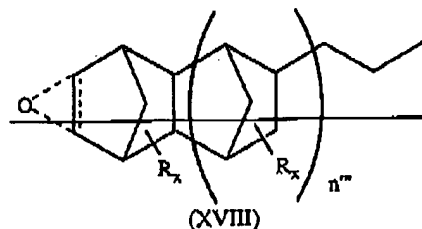
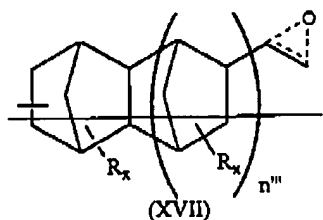
wherein:

X is a trimer or tetramer of optionally substituted cyclopentadiene bearing at least one functional group, or a radical having one of the following structures:



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wherein:

each R is independently lower alkyl or halogen,

n is 1 or 2,

the sum of $n' + n''$ is 2 or 3,

~~n''' is 0 up to about 8,~~

m is 1 up to about 9,

each x is independently 0, 1, or 2, and

x' is 0, 1, 2;

Y is an optional bridging group; and

Z is a trimer or tetramer of an optionally substituted cyclopentadiene moiety bearing at least one functional group, a radical having one of said structures (XIII), ~~(XIV)~~, (XV), (XVI), ~~(XVII)~~, ~~(XVIII)~~, or (XIX), ~~or~~ ~~(XX)~~, an epoxy or a cycloaliphatic moiety bearing at least one functional group; and

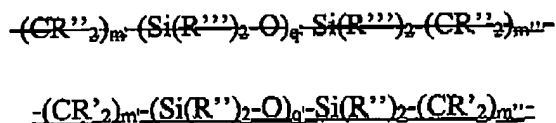
wherein at least one of said functional groups on said bifunctional monomer is epoxy.

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Claim 9. (Original) A bifunctional monomer according to claim 8, wherein Y is a siloxane.

Claim 10. (Currently amended) A bifunctional monomer according to claim 9, said siloxane having the structure:



wherein:

each R'' R' is independently ~~oxygen~~, a lower ~~(oxy)~~ alkyl or halogen,

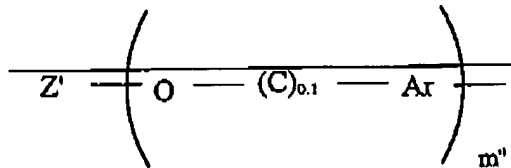
each R'' R' is independently selected from hydrogen, ~~oxygen~~, lower ~~(oxy)~~ alkyl or ~~(oxy)~~ aryl,

m' falls in the range of 0 up to about 10,

m'' m'' falls in the range of 0 up to about 10, and

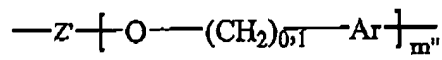
q' falls in the range of 1 up to 50.

Claim 11. (Currently amended) A bifunctional monomer according to claim 8, wherein Y is aromatic groups having the structure:



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wherein:

$m'' = 1, 2 \text{ or } 3,$

each Ar is a monosubstituted, disubstituted or trisubstituted aromatic or heteroaromatic ring having in the range of 3 up to 10 carbon atoms, and

Z' is a high molecular weight branched chain ~~alkyl~~, alkylene or alkylene oxide species having from about 12 to about 500 atoms in the backbone thereof,

as well as mixtures thereof.

Claim 12. (Original) A bifunctional monomer according to claim 8, wherein said substituents are independently lower alkyl or halogen.

Claim 13. (Original) A bifunctional monomer according to claim 8, wherein said functional groups are maleimido, norbornyl, cyanate ester, (meth) acrylates, anhydrides, carboxylic acids, amines, amides, sulfides, or polyhydroxy hydrocarbyls.

Claims 14-22. (Canceled)

Claim 23. (New) A bifunctional monomer according to the following structure:

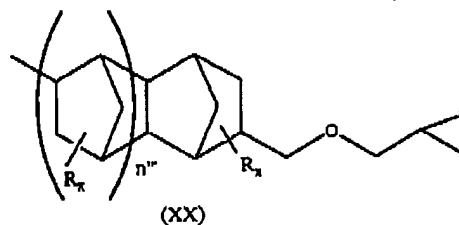
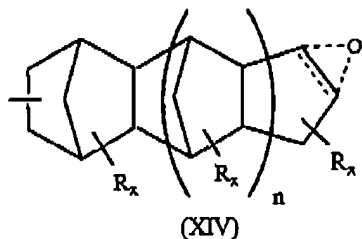


wherein:

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X is a trimer or tetramer of optionally substituted cyclopentadiene bearing at least one functional group, or a radical having one of the following structures:



wherein:

each R is independently lower alkyl or halogen,

n is 1 or 2,

n''' is 0 up to about 8, and

each x is independently 0, 1, or 2;

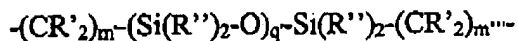
Y is an optional bridging group selected from a siloxane or aromatic groups; and

Z is a trimer or tetramer of an optionally substituted cyclopentadiene moiety bearing at least one functional group, a radical having structure (XIV), (XX), an epoxy, or a cycloaliphatic moiety bearing at least one functional group; and

wherein at least one of the functional groups on the bifunctional monomer is epoxy.

Claim 24. (New) A bifunctional monomer according to claim 23, wherein Y is siloxane.

Claim 25. (New) A bifunctional monomer according to claim 24, the siloxane having the structure:



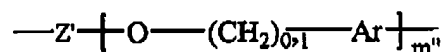
wherein:

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each R' is independently a lower alkyl or halogen,
each R'' is independently selected from hydrogen, lower alkyl or aryl,
m' falls in the range of 0 up to about 10,
m''' falls in the range of 0 up to about 10, and
q' falls in the range of 1 up to 50.

Claim 26. (New) A bifunctional monomer according to claim 23, wherein Y is aromatic groups having the structure:



wherein:

m'' = 1, 2 or 3,

each Ar is a monosubstituted, disubstituted or trisubstituted aromatic or heteroaromatic ring having in the range of 3 up to 10 carbon atoms, and

Z' is a high molecular weight branched chain alkylene or alkylene oxide species having from about 12 to about 500 atoms in the backbone thereof,

as well as mixtures thereof.

Claim 27. (New) A bifunctional monomer according to claim 23, wherein the substituents are independently lower alkyl or halogen.

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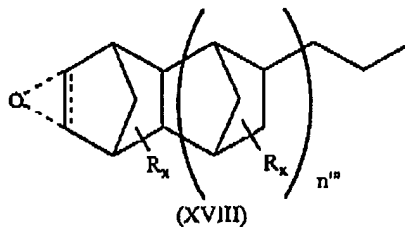
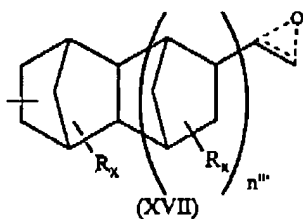
Claim 28. (New) A bifunctional monomer according to claim 23, wherein the functional groups are maleimido, norbornyl, cyanate ester, (meth) acrylates, anhydrides, carboxylic acids, amines, amides, sulfides, or polyhydroxy hydrocarbyls.

Claim 29. (New) A bifunctional monomer according to the following structure:



wherein:

X is a trimer or tetramer of optionally substituted cyclopentadiene bearing at least one functional group, or a radical having one of the following structures:



wherein:

each R is independently lower alkyl or halogen,

n''' is 1 up to about 8, and

each x is independently 0, 1, or 2;

Y is an optional bridging group; and

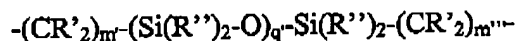
Z is a trimer or tetramer of an optionally substituted cyclopentadiene moiety bearing at least one functional group, a radical having one of the structures (XVII) or (XVIII), an epoxy or a cycloaliphatic moiety bearing at least one functional group; and wherein at least one of the functional groups on the bifunctional monomer is epoxy.

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Claim 30. (New) A bifunctional monomer according to claim 23, wherein Y is a siloxane.

Claim 31. (New) A bifunctional monomer according to claim 24, the siloxane having the structure:



wherein:

each R' is independently oxygen, a lower alkyl or halogen,

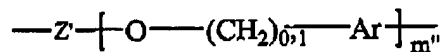
each R'' is independently selected from hydrogen, lower alkyl or aryl,

m' falls in the range of 0 up to about 10,

m'' falls in the range of 0 up to about 10, and

q' falls in the range of 1 up to 50.

Claim 32. (New) A bifunctional monomer according to claim 23, wherein Y is aromatic groups having the structure:



wherein:

m'' = 1, 2 or 3,

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each Ar is a monosubstituted, disubstituted or trisubstituted aromatic or heteroaromatic ring having in the range of 3 up to 10 carbon atoms, and

Z' is a high molecular weight branched chain alkylene or alkylene oxide species having from about 12 to about 500 atoms in the backbone thereof,

as well as mixtures thereof.

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Claim 33. (New) A bifunctional monomer according to claim 23, wherein the substituents are independently lower alkyl or halogen.

Claim 34. (New) A bifunctional monomer according to claim 23, wherein the functional groups are maleimido, norbornyl, cyanate ester, (meth) acrylates, anhydrides, carboxylic acids, amines, amides, sulfides, or polyhydroxy hydrocarbyls.
